172

MEMORANDUM

ON

THE RHEA-FIBRE PLANT.

Boehmeria nivea.—Hook. and Arn.

Origin of botanical name.—The genus *Boehmeria* was created in honor of George Rudolph Boehmer, a German botanist. The specific name, *nivea*, (snowy) has reference to the underside of the leaf, which is white like snow.

Figure and description.—*Boehmeria nivea* is a soft-wooded shrub of the nettle family, *Urticaceæ*. But it differs from the proper nettle in having no stinging hairs. Root tuberous and fibrous. Shoots mostly simple and cane-like; herbaceous at first but soon becoming woody. When full grown they vary in height from four to eight feet, or even higher where the conditions of growth are exceptionally favorable. Leaves alternate, long-petioled, hairy, broadly cordate, acuminate, coarsely toothed, and snow-white on the underside. The unisexual flowers are some-what crowded in simple or branching panicles in the axils of the leaves. In every case the pistillate or female flowers occupy the upper position, the male or staminate flowers being found at the base of the panicle. The plant has not been known to produce fruit or seed in Mysore, where it is an exotic, hence these parts are not figured.

Explanation of Plate.

1 End of flowering shoot.
2 Pistillate or female flowers.
3 Staminate or male flowers.
4 Male flower magnified.
5 Female flower, unopened and magnified.

Habitat and distribution.—The Rhea plant is truly indigenous to the Malay Islands, China, and Japan. But like other useful plants it has been cultivated and domesticated to some extent in many other parts of the world, as in India, Brazil, Paraguay, Ceylon, Australia, and the warmer parts of Europe. It is, in short, a sub-tropical plant requiring a copious rainfall (otherwise irrigation) to bring its growth to perfection.

Propagation.—To secure seed, the plants cultivated in this country require very special treatment. But even then, the supply is usually scanty and precarious. It is fortunate, therefore, that the Rhea plant is so readily propagated by the division of its tubers, offsets, and stems. The best plan is to lift a matured plant bodily for the purpose of division. The tubers, which resemble small potatoes, can then be dibbled into the nursery separately, the larger ones possessing several "eyes," can also be cut into "sets" as in the esculent just referred to. Then by careful handling, a sturdy rootstock can be separated into many parts, each having a little root and stem. Finally, the cane or stem can be reduced into cuttings of 5-6 inches in length. The best cuttings are obtained from the matured wood, but treated under glass, in fine sand, the tender or herbaceous portions of the stem will also take root. By the above methods many thousands of plants can be raised from even a limited stock. But to insure success it should be done during the growing season. In this climate, old stools and freshly rooted slips are practically as hardy as nettles, so that once established the plant is propagated without risk or even much trouble. The Botanical Gardens possess several thousand plants from which young stock can be raised in quantity. Rhea has also been domesticated to some extent in the coffee districts, so that even in the absence of seed, we have ample material to propagate from.

Sites for natural growth.—In Mysore, the hill country included in the districts of Hassan, Kadur, and Shimoga, affords the position and climate best suited to the hardy growth of Rhea, and in the most favorable situations it is not improbable but the plant would run wild to some extent. What is really required in this new product is its possession in great quantity raised at a nominal cost. It should therefore be encouraged to spread in suitable localities. It might, for instance, replace *Lantana camara*, with which it is nearly equally hardy, but less aggressive and far more useful.

Sites for cultivation.—It follows that where the plant will thrive without help it will also be the most productive under liberal cultivation. Extensive areas of comparatively open forest and having a good head-flow of water from some perennial stream would answer well, providing that the soil is fertile and open. Good drainage is a very essential condition of this culture, so that the sloping sides of hills and sholas might be preferable to lands situated on flats and in basins. The annual rainfall should not be less than 50 inches and would not hurt with if it reached 100. Wet lands on the sides of rivers and canals bordering the Malnad, would only be suitable if they are porous and easily drained. But in all probability the existing wet crops are much more profitable than Rhea is ever likely to become under similar conditions of cultivation.

Cultivation.—Virgin forest soil, and good loam with a liberal admixture of sand, are usually suitable for the vigorous growth of Rhea. But there must be no stagnation of water, hence it is necessary that plots demarcated for planting should be thoroughly opened by the plough. This is best done at the close of the Monsoon when the surface herbage can be ploughed in and left to rot during the dry season. At the bursting of the South-West Monsoon

another thorough ploughing will be needed to make the surface soil soft and workable. Rooted plants of Rhea can then be put out in the field at 3-4 feet apart. The crop will not be a full one during the first year, but in the 2nd, 3rd and 4th years it will be full. Under good cultivation the young plants throw out many suckers or offsets, and after 12-15 months of continual growth the intervening spaces will be nearly full of stems of various sizes. After the fourth year the growth becomes stunted and the fibre deteriorates in length, texture, and value. When this takes place the field has to be entirely broken up and a new one laid down. But should it be preferred to break up and resuscitate the original field, a large amount of manure would have to be applied in the first instance and at reasonable intervals subsequently. After the first planting, field operations consist of weeding, hoeing, and removing the matured stems.

With continual growth all the year round, supported by irrigation during the dry months, an average yield will be three cuttings, but under exceptional circumstances even four cuttings may be obtained.

Possible yield per acre.—The outturn of fibre per acre differs according to climate and situation. But the best average results under proper cultivation are not likely to exceed eight tons of ribbon (stripped bark) per annum. At any rate, a larger quantity than this should not be expected from Indian cultivation.

Present market value.—Bales of assorted ribbons are now purchased on contract by a home company at £10 per ton. But it is very doubtful if this price would be maintained in the open market. Any quotation of value at the present stage of the industry must therefore be more or less unreliable. But supposing the yield in India is only six tons per annum, and the market value £5 per ton, an acre of Rhea would still be worth £30 to the cultivator.

J. CAMERON, *Supt., Govt. Gardens.*

393

Boehmeria nivea. Hook.